

BLUE GRASS PIT AND LOON PIT ANGLER CREEL SURVEY
AND LARGEMOUTH BASS SURVEY

Warrick County
2006 Fish Management Report

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EXECUTIVE SUMMARY

- An angler creel survey was conducted on Blue Grass Pit and Loon Pit from March 6 through November 5, 2006.
- A supplemental largemouth bass survey was conducted on Blue Grass Pit on April 10 and 17, 2006 and at Loon Pit on April 11 and 18, 2006.
- A total of 428 anglers fished 12,190 h on Blue Grass Pit and a total of 346 anglers fished 8,380 h at Loon Pit.
- Crappie was the most harvested species at both pits. However, largemouth bass was the most sought after species by anglers.
- The largemouth bass population at Blue Grass Pit exhibited an increase in PSD, RSD14, and RSD18.
- The largemouth bass population at Loon Pit exhibited an increase in PSD and RSD14. The RSD18 remained the same as 2005.
- A muskellunge stocking program was initiated in the fall of 2006 and it is recommended that muskie fingerlings be stocked annually at both pits.
- A supplemental survey to evaluate largemouth bass is recommended at Blue Grass Pit and Loon Pit for 2008.
- An angler creel survey is recommended for 2010 at Blue Grass Pit and Loon Pit.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iii
LIST OF FIGURES	iii
INTRODUCTION.....	1
METHODS.....	1
Angler creel survey	1
Largemouth bass surveys	2
RESULTS.....	2
BLUE GRASS PIT	2
Angler creel survey	2
Largemouth bass survey.....	5
LOON PIT	5
Angler creel survey	5
Largemouth bass survey.....	7
DISCUSSION	8
Blue Grass Pit.....	8
Loon Pit.....	9
RECOMMENDATIONS	9
LITERATURE CITED	10
APPENDIX 1, Length frequency distribution of fish harvested from Blue Grass Pit.....	15
APPENDIX 2, Length frequency distribution of fish harvested from Loon Pit.....	15
APPENDIX 3, Blue Grass Pit largemouth bass survey data.....	17
APPENDIX 4, Loon Pit largemouth bass survey data.....	22

LIST OF TABLES

Table	Page
1. Estimated number of anglers, hours of fishing pressure, and overall harvest rates by month at Blue Grass Pit.....	11
2. Estimated numbers and pounds of fish harvested at Blue Grass Pit.....	11
3. Estimated number of anglers, hours of fishing pressure, and overall harvest rates by month at Loon Pit.....	12
4. Estimated numbers and pounds of fish harvested at Loon Pit	12

LIST OF FIGURES

Figure	
1. Blue Grass Pit largemouth bass population indices, 2001 through 2006.....	13
2. Loon Pit largemouth bass population indices, 2004 through 2006	14

INTRODUCTION

Blue Grass Pit (195-acres) and Loon Pit (184-acres) are reclaimed strip pits located at Blue Grass Fish and Wildlife Area in Warrick County. The Fish and Wildlife Area was acquired by the Department of Natural Resources, Division of Fish and Wildlife (DFW) in August of 2000 and consists of 2,532 acres containing 28 pits. Due to flooding from nearby Pigeon Creek and Blue Grass Creek, Blue Grass Pit and Loon Pit contain “river” fish species that are not commonly found in lakes. The pits are connected by a 36 in culvert pipe. Shoreline angler access is available along Boonville-New Harmony Road for both pits and Kansas Road for Loon Pit. Two boat ramps, one paved and one gravel, are located at each pit, at the north and south ends. There are no fees to access the lakes. Outboard motors are allowed, but must be operated at idle speed. Maps of the property can be found online at <http://www.in.gov/dnr/fishwild/publications/blue.htm>, at a hunter self-serve station at Blue Grass Pit, and at the Sugar Ridge Fish and Wildlife Area office. Fishing is not allowed during waterfowl hunting season. Currently, the largemouth bass minimum length limit is 18.0 in and the bag limit is two. These regulations were enacted on February 1, 2003.

An angler creel survey was conducted in 2004 at Blue Grass Pit and Loon Pit to evaluate fishing pressure, angler opinion, and the largemouth bass regulations. The survey revealed that the best fishing was for crappie, channel catfish, and largemouth bass at both pits. The 2005 largemouth bass supplemental survey found growth was good at both pits and more large bass were sampled than in previous years. The 2005 crappie survey at Blue Grass Pit revealed a slow growing population dominated by fish less than 10.0 in.

METHODS

Angler creel survey

The angler creel survey was conducted by a single clerk from March 6 through November 5, 2006. The creel clerk worked a total of 153 d, split up between both pits (75 d at Blue Grass Pit and 78 d at Loon Pit). Ten days out of every 14-d period were sampled including every weekend day. The clerk worked either the morning (0630 h to 1330 h) or the afternoon shift (1330 h to 2100 h). Since fishing pressure is typically higher in the afternoon, 75% of the sampling was conducted during the afternoon shift. Count data was taken five times a shift from a boat.

Boat and shore anglers were interviewed between counts. Typical information obtained from angler interviews included fishing trip length, the number of anglers in the fishing party, species sought, number and lengths of fish harvested by species, number of largemouth bass caught and released, and county of residence. Largemouth bass catch and release totals were categorized into less than or at least 18.0 in. All anglers interviewed were asked; “Are you in favor of the 18-in largemouth bass length limit?; Are you in favor of the two bass bag limit?; Were you satisfied with your fishing trip?; and Would you be in favor of a muskie stocking program at this lake?.” The creel clerk measured harvested fish to the nearest 0.5 in TL.

Yield was estimated by using the Fish Management District 7 average weights. Harvest estimates were expanded with the DFW standard small lake angler creel survey program developed by Stuart Shipman and modified by Larry Koza.

Largemouth bass surveys

The largemouth bass surveys were conducted from April 10 through 18, 2006 at Blue Grass and Loon Pits. Water temperature and conductivity were recorded. Fish collection effort consisted of pulsed DC night electrofishing with one dipper for 3.75/h at both pits. All fish collected were measured to the nearest 0.1 in TL. Average weights were estimated by using the Fish Management District 7 averages. Scales were taken for age and growth analysis. Proportional stock density and RSD were calculated (Anderson and Neumann 1996). A single factor analysis of variance was used to compare 2006 largemouth bass PSDs and RSDs to the previous years.

RESULTS

BLUE GRASS PIT

Angler creel survey

A total of 428 anglers fished approximately 12,190 h (62.5 h/acre) from March 6 through November 5, 2006 (Table 1). The highest fishing pressure occurred in April (16.2 h/acre), followed by July (13.0 h/acre), and May (10.3 h/acre). The lowest fishing pressure occurred in March (2.7 h/acre). In 2004, 941 anglers fished approximately 20,051 h (115.90 h/acre).

The overall harvest rate was 0.11 fish/h. The highest harvest rate was in November (0.35 fish/h), followed by March (0.26 fish/h), and June (0.20 fish/h). The lowest harvest rates were in

August and September with no fish being harvested. The total catch rate (harvested fish plus caught and released bass) was 0.63 fish/h. The overall harvest rate in 2004 was 0.15 fish/h and the total catch rate was 0.51 fish/h.

The total harvest was 1,348 fish, representing five species, that weighed 571 lbs (Table 2, Appendix 1). Crappie comprised 58% of the total harvest by number, followed by bluegill (37%), and channel catfish (4%). Crappie accounted for 61% of the harvest by weight, followed by channel catfish (22%), and bluegill (17%). The total harvest in 2004 was 2,780 fish with crappie dominating the harvest.

A total of 778 crappie was harvested that weighed 346 lbs. They ranged in length from 8.0 to 12.0 in and averaged 9.5 in. Forty-two percent of the crappie harvested were at least 10.0 in. Most of the crappie were harvested in April (473) and March (126). No crappie were harvested from June through September. A total of 2,780 crappie was harvested in 2004 with only 14% being at least 10.0 in.

A total of 502 bluegill was harvested that weighed 97 lbs. They ranged in length from 4.5 to 7.5 in and averaged 6.3 in. All the bluegill were harvested in May and June. Ninety-four bluegill were harvested in 2004 that averaged 5.9 in.

A total of 47 channel catfish was harvested that weighed 125 lbs. They ranged in length from 17.5 to 21.5 in and averaged 19.6 in. Channel cats were most frequently harvested in March and July. Ninety-four channel catfish were harvested in 2004 that averaged 18.1 in.

Eleven redear sunfish and 10 longear sunfish were harvested. The redear and longear lengths were all 6.0 in.

No largemouth bass were harvested in this survey while 14 were harvested in 2004. A total of 6,282 largemouth bass was caught and released, of which 66 were at least 18.0 in. April and July had the highest catch and release totals at 1,905 and 977. March had the lowest catch and release total at 92. A total of 7,319 largemouth bass was caught and released in 2004, of which 73 were at least 18.0 in.

Most anglers indicated that they were fishing for “anything” at Blue Grass Pit (40%). Largemouth bass were the second most sought after species (37%), followed by crappie (16%), channel catfish (4%), bluegill (3%), and redear sunfish (<1%). Largemouth bass were the most sought after species in 2004 (37%).

Anglers from seven of Indiana's 92 counties fished at Blue Grass Pit during the creel period. The majority of anglers resided in Vanderburgh (62%) and Warrick (22%) Counties. Less than 14% of the anglers resided in each of the other five counties. Non-residents accounted for 2% of the anglers. In 2004, anglers from 20 of Indiana's counties fished Blue Grass Pit with a similar percent of anglers residing in Vanderburgh and Warrick Counties.

At the end of the interview, the clerk asked each party four questions. The responses to each question are as follows:

1. Are you in favor of the 18-in largemouth bass length limit?

Eighty-one percent of the anglers were in favor, 14% were not in favor, and 5% had no response. These results were similar to 2004 values of 84% in favor, 16% not in favor, and less than 1% with no response.

2. Are you in favor of the two bass bag limit?

Eighty-four percent of the anglers were in favor, 12% were not in favor, and 4% had no response. These results were similar to 2004 values of 83% in favor, 16% not in favor, and 1% with no response.

3. Were you satisfied with your fishing trip?

Eighty-four percent of anglers were satisfied, 12% were not satisfied, and 4% had no response. These results were similar to 2004 values of 82% satisfied, 6% not satisfied, and 12% with no response.

4. Would you be in favor of a muskie stocking program at this Pit?

Sixty percent were in favor, 23% were not in favor, and 17% had no response. These results were similar to 2004 values of 58% in favor, 21% not in favor, and 21% with no response.

Fishing related expenditures such as bait, tackle, food, license fees, lodging, and transportation represent a monetary value for Blue Grass Pit's fishery. The average cost for a fishing trip in Indiana was \$36.56/angler day in 2001 (U.S. Department of Interior, Fish and Wildlife Service, U. S. Department of Commerce, and U. S. Census Bureau, 2001). The \$36.56 average was used to determine the economic value of Blue Grass Pit's fishery. The 428 anglers that fished the lake during the creel period represented an economic value of \$15,647.68. The 2004 economic value was \$34,402.96.

Largemouth bass survey

A total of 335 largemouth bass was collected that weighed 176 lbs (Appendix 3). They ranged in length from 4.0 to 21.5 in. The bass electrofishing catch rate was 89.3/h. In 2005, the electrofishing catch rate was 145.1/h. Growth was near the district averages for all ages except ages 1, 2, and 8 which were fast growing. Age-4 and age-5 bass averaged 12.1 and 14.3 in which is similar to 2005 results, while the average length of age-6 bass decreased from 17.5 to 16.3 in.

The largemouth bass PSD did not significantly change from previous surveys, but it did increase from 7 to 21. The RSD14 was 13, which significantly increased when compared to 2001, 2004, and 2005 data ($F = 52.56$, $df = 3$, $P = 0.02$). The RSD18 also significantly increased to 4 ($F = 25.00$, $df = 3$, $P = 0.04$) (Figure 1).

LOON PIT

Angler creel survey

A total of 346 anglers fished approximately 8,380 h (45.5 h/acre) from March 7 to October 30, 2006 (Table 3). The highest fishing pressure occurred in May (10.6 h/acre), followed by July (9.0 h/acre), and June (7.1 h/acre). The lowest fishing pressure was in October (1.8 h/acre). A total of 537 anglers fished approximately 9,824 h (47.7 h/acre) in 2004.

The overall harvest rate was 0.12 fish/h. The highest harvest rate was in April (0.42 fish/h), followed by June (0.19 fish/h), and July (0.07 fish/h). No fish were harvested in August. The overall catch rate was 0.59 fish/h. The overall harvest rate in 2004 was 0.06 fish/h and the catch rate was 0.38 fish/h.

The total harvest was 1,018 fish, representing six species, that weighed approximately 549 lbs (Table 4, Appendix 2). Crappie comprised 59% of the harvest by number, followed by “other fish” species (longear sunfish and warmouth combined) (23%), and bluegill (14%). Crappie accounted for 51% of the harvest by weight, followed by channel catfish (24%), largemouth bass (11%), and bluegill (8%). The 2004 harvest was 580 fish with crappie comprising half the total.

A total of 600 crappie was harvested that weighed 280 lbs. They ranged in length from 8.0 to 13.0 in and averaged 9.7 in. Fifty percent of the harvested crappie were 10.0 in or longer. Crappie were harvested most frequently in April (478), May (71), and October (21). No crappie

were harvested in June, August, or September. A total of 302 crappie was harvested in 2004 and only 8% were at least 10.0 in.

Warmouth and longear sunfish combined for the “other species” totals. A total of 231 was harvested that weighed approximately 35 lbs. These fish were harvested in May and June. There were no longear or warmouth harvested in 2004.

A total of 138 bluegill was harvested that weighed 44 lbs. They ranged in length from 6.0 to 8.0 in and averaged 7.4 in. All the bluegill were harvested in May and July. A total of 138 bluegill was harvested in 2004 that averaged 5.8 in.

Thirty-three channel catfish were harvested that weighed 131 lbs. They ranged in length from 18.0 to 28.0 in and averaged 21.8 in. Channel catfish were only harvested in June and September. A total of 125 channel catfish was harvested in 2004 that averaged 17.3 in.

A total of 16 largemouth bass was harvested that weighed 61 lbs. No largemouth bass were actually measured, although legally harvested bass would be at least 18.0 in. All 16 were harvested in June. Four largemouth bass were harvested in 2004.

A total of 3,889 largemouth bass was caught and released, of which 11 were at least 18.0 in. April had the highest catch and release total (1,386), followed by May (710), and June (577). The lowest catch and release total was in March (116). A total of 3,124 bass was caught and released in 2004 and 31 were at least 18.0 in.

Largemouth bass was the most sought after species at Loon Pit. Forty-four percent of the respondents targeted largemouth bass, followed by anglers indicating they were fishing for “anything” (40%), crappie (10%), channel catfish (5%), and bluegill (2%). Largemouth bass was also the most sought after species in 2004 (42%).

Anglers from eight of Indiana’s 92 counties fished at Loon Pit during the creel period. The majority of anglers resided in Vanderburgh (67%) and Warrick (20%) Counties. Less than 11% of the anglers resided in the other six counties. Non-residents accounted for 2% of the anglers. Anglers from 12 of Indiana’s counties fished Loon Pit in 2004.

At the end of the interview, the clerk asked each party four questions. The responses to each question are as follows:

1. Are you in favor of the 18-in largemouth bass length limit?

Eighty-eight percent of anglers were in favor, 6% were not in favor, and 6% had no response. Ninety percent were in favor in 2004, 9% were not in favor, and 1% had no response.

2. Are you in favor of the two bass bag limit?

Eighty-four percent of anglers were in favor, 13% were not in favor, and 3% had no response. Eighty-nine percent were in favor in 2004, 9% were not in favor, and 2% had no response.

3. Were you satisfied with your fishing trip?

Eighty-seven percent were satisfied, 9% were not satisfied, and 4% had no response. Eighty-one percent were satisfied in 2004, 6% were not satisfied, and 13% had no response.

4. Are you in favor of a muskie stocking program at this Pit?

Sixty-eight percent were in favor, 18% were not in favor, and 14% had no response. Fifty-eight percent were in favor in 2004, 19% were not in favor, and 23% had no response.

Fishing related expenditures such as bait, tackle, food, license fees, lodging, and transportation represent a monetary value for the Loon Pit fishery. The average cost for a fishing trip in Indiana was \$36.56/angler day in 2001. The 346 anglers that fished the lake during the creel period represented an economic value of \$12,649.76. The 2004 economic value was \$19,632.72.

Largemouth bass survey

A total of 254 largemouth bass was collected that weighed 134 lbs (Appendix 4). They ranged in length from 3.9 to 20.9 in. The electrofishing catch rate was 67.7/h which was similar to the 2005 catch rate of 68.5/h. Growth was near the district averages for all ages with age-4 and age-5 bass averaging 11.9 and 14.4 in. Growth was similar in 2005.

The largemouth bass PSD did not significantly change, however, it has increased from 6 in 2004 to 17. The RSD14 was 5, which significantly increased when compared to 2004 and 2005 data ($F = 11,996,000$, $df = 2$, $P < 0.01$). The RSD18 remained the same at 1 (Figure 2).

DISCUSSION

Blue Grass Pit

The best fishing at Blue Grass Pit was for crappie, channel catfish, and largemouth bass. This pit provides good fishing opportunities with little crowding. Total fishing pressure substantially decreased from 115.9 to 62.5 h/acre. The overall catch rate increased 24%, while the harvest rate only slightly decreased to 0.11 fish/h. Even though the harvest rate only slightly changed, the total harvest decreased by 52%. The harvest reduction was the direct result of the lower fishing pressure.

The 18-in length limit and two bass bag limit is positively affecting Blue Grass Pit's fishery. The PSD, RSD14, and RSD18 increased from 2005 values and now more, larger bass are in the population. The PSD value is approaching the suggested range for a balanced fishery (40 to 70). An increase in PSD indicates an increase in the proportion of 12.0 in and longer bass. The RSD18 is at the highest value recorded at 4, which indicates a higher proportion of 18.0 in and longer bass in the population. There is already a supplemental bass survey planned for 2007 and the monitoring should continue through 2008.

The majority of anglers, when targeting a single species, were fishing for largemouth bass. No largemouth bass were harvested during the creel period. A minimal number of harvested bass was expected with the current bass regulations in combination with catch and release becoming more popular. Total bass catch rates (harvested plus catch and release) increased from 0.37 to 0.51 bass/h indicating that bass fishing is improving. An angler creel survey will be conducted in 2010 to further evaluate fishing pressure and harvest following the same procedures as this survey.

Crappie fishing has improved since 2004 for quality fish. The harvest decreased by 72%, but the average length increased from 8.8 to 9.5 in. The percentage of crappie that were at least 10.0 in increased from 14% to 42%.

Channel catfish and bluegill harvest substantially changed since 2004. The channel catfish harvest decreased by 50%, while the average length at harvest increased from 18.1 to 19.6 in. The bluegill harvest increased from 94 to 502, but their average length was only 6.3 in. Blue Grass Pit is not a quality bluegill fishing lake.

A muskellunge stocking program was initiated in the fall of 2006 with 975 fingerlings being stocked. These fish will create a unique fishery for the area. Muskie will continue to be stocked annually at the current rate and will be monitored through periodic angler creel surveys.

Loon Pit

The best fishing at Loon Pit was for crappie, channel catfish, and largemouth bass. This pit provides good fishing opportunities with little crowding. Fishing pressure was low at 45.5 h/acre indicating that this pit is being underutilized. The harvest rate doubled from 0.06 to 0.12 fish/h and the total catch rate increased 55%. Crappie was the most frequently harvested fish and the number of crappie harvested increased by 99%, accounting for the majority of the harvest increase. In addition, 50% of the crappie harvested were at least 10.0 in compared to 8% in 2004. Crappie fishing has dramatically improved since 2004.

The 18-in length limit and two bass bag limit is positively affecting Loon Pit's fishery. The PSD and RSD14 increased from 2005 values and now more, larger bass are present in the population. The RSD14 significantly increased from previous years to the highest recorded at 5. As these fish continue to grow the RSD18 should show a substantial increase in 3 years. There is already a supplemental bass survey planned for 2007 and the monitoring should continue through 2008.

The majority of anglers, when targeting a single species, were fishing for largemouth bass. Bass harvest was minimal as was expected with the current bass regulations. Nearly 4,000 largemouth bass were caught and released. The total bass catch rate increased from 0.32 to 0.47 bass/h, indicating that bass fishing is improving. An angler creel survey will be conducted in 2010 to further evaluate fishing pressure and harvest following the same procedures as this survey.

A muskellunge stocking program was initiated in the fall of 2006 with 920 fingerlings being stocked. These fish will create a unique fishery for the area. Muskie will continue to be stocked annually at the current rate and will be monitored through periodic angler creel surveys.

RECOMMENDATIONS

- A supplemental survey to evaluate the largemouth bass population is recommended for 2008 at Blue Grass and Loon Pits.

- An angler creel survey at both pits is recommended for 2010.
- Continue muskellunge stocking program at both pits.

LITERATURE CITED

Anderson, R. O. and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-481 *in* B. R. Murphy and D. W. Willis, editors. Fisheries Techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

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Submitted by: Michelle L. Weinman, Assistant Fisheries Biologist
Date: January 29, 2007

Approved by: Daniel P. Carnahan, Fisheries Biologist
Date: January 30, 2007

Approved by: _____
Brian M. Schoenung, Fisheries Supervisor
Date: May 16, 2007

Table 1. Estimated number of anglers, hours of fishing pressure, and overall harvest rates by month at Blue Grass Pit.

Month	Number of anglers	Fishing pressure (h)	Harvest rate (fish/h)
March	27	528	0.26
April	103	3,162	0.15
May	86	2,013	0.14
June	71	1,585	0.20
July	64	2,536	0.01
August	8	548	0.00
September	22	719	0.00
October	42	918	0.06
November	5	181	0.35
Totals	428	12,190	0.11

Table 2. Estimated numbers and pounds of fish harvested at Blue Grass Pit.

Species	Number harvested	Percent of total	Pounds harvested	Percent of total	Average length (in)
Crappie	778	57.7	346	60.6	9.5
Bluegill	502	37.2	97	17.0	6.3
Channel catfish	47	3.5	124	21.8	19.9
Redear sunfish	11	0.8	2	0.3	6.0
Longear sunfish	10	0.7	2	0.3	6.0
Totals	1,348		571		

Table 3. Estimated number of anglers, hours of fishing pressure, and overall harvest rates by month at Loon Pit.

Month	Number of anglers	Fishing pressure (h)	Harvest rate (fish/h)
March	34	708	0.02
April	46	1,130	0.42
May	70	1,951	0.06
June	63	1,315	0.19
July	51	1,659	0.07
August	12	452	0.00
September	41	841	0.02
October	29	324	0.06
Totals	346	8,380	0.12

Table 4. Estimated numbers and pounds of fish harvested at Loon Pit.

Species	Number harvested	Percent of total	Pounds harvested	Percent of total	Average length (in)
Crappie	600	58.9	280	51.1	9.7
Longear sunfish and Warmouth	231	22.7	35	6.3	6.0
Bluegill	138	13.5	42	7.6	7.4
Channel catfish	33	3.2	131	23.8	21.8
Largemouth bass	16	1.6	61	11.0	18.0
Totals	1,018		549		

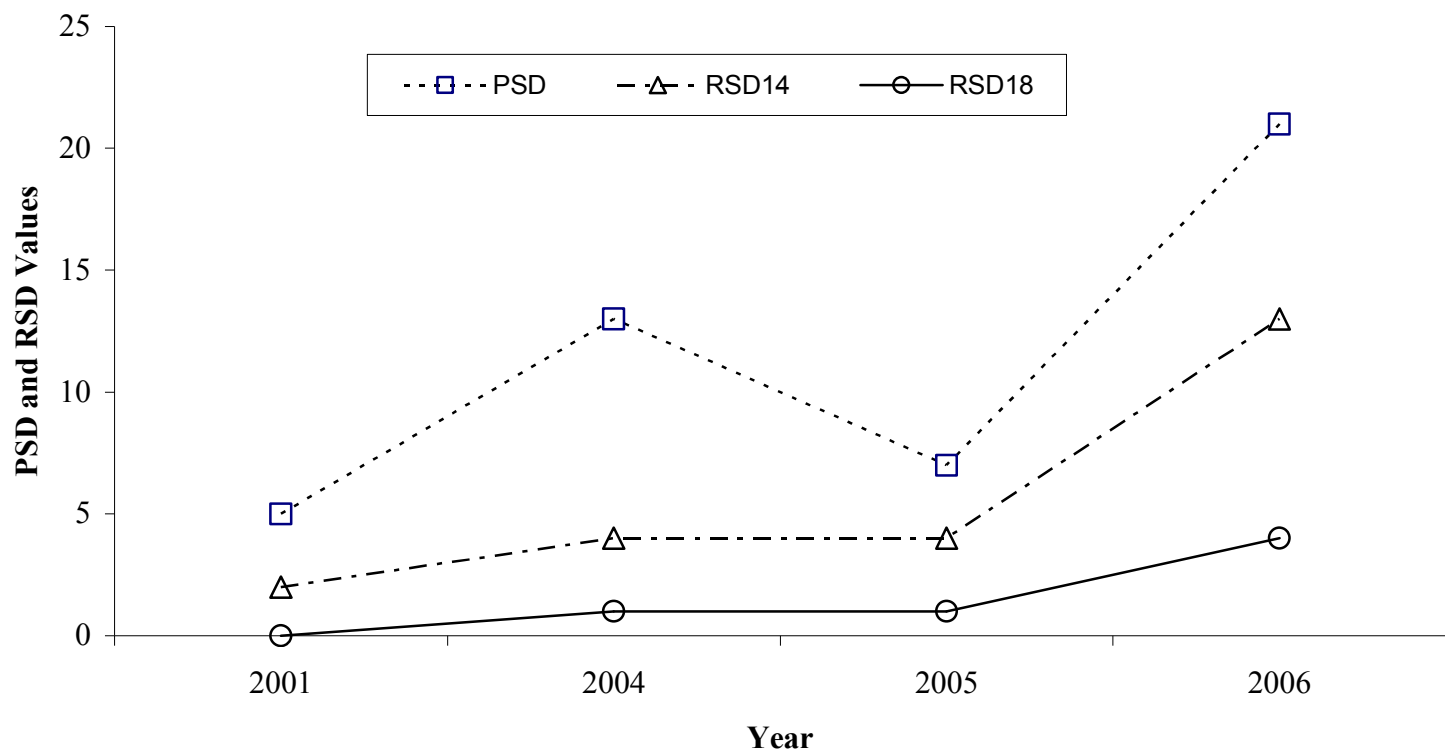


Figure 1. Blue Grass Pit largemouth bass population indices, 2001 through 2006.

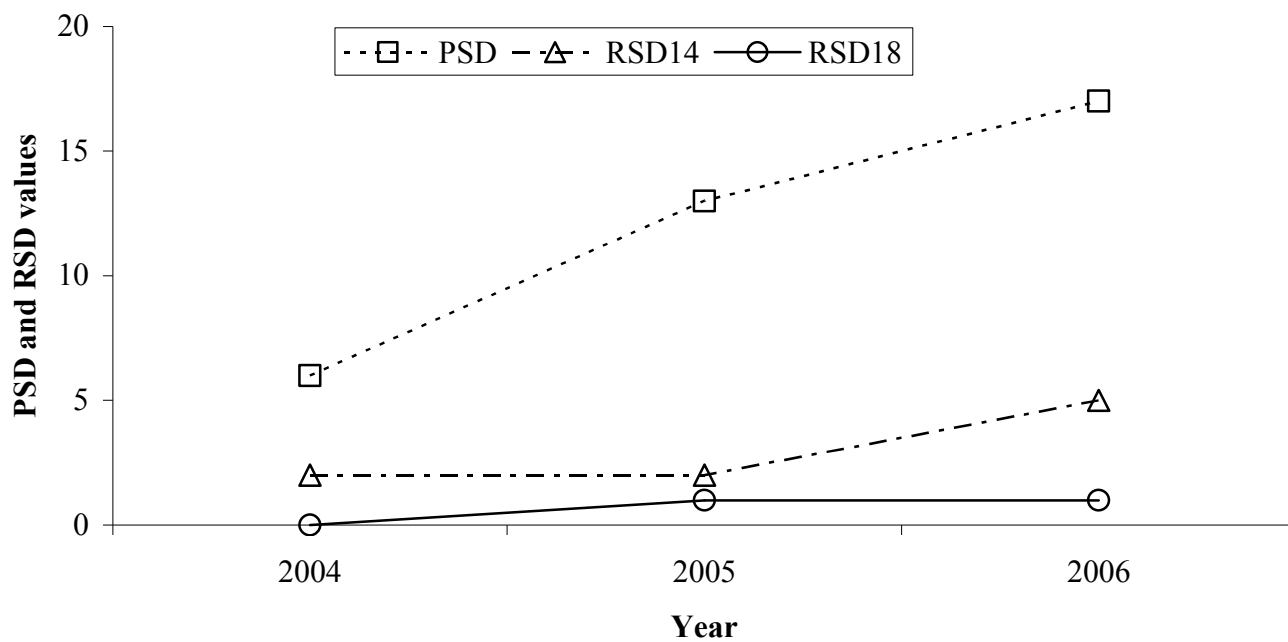


Figure 2. Loon Pit largemouth bass population indices, 2004 through 2006.

Appendix 1. Length frequency distribution of fish harvested from Blue Grass Pit.

Length (inches)	Crappie		Channel catfish		Bluegill		Redear sunfish	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
4.5					1	5.9		
5					3	17.6		
5.5								
6					3	17.6	1	100.0
6.5					4	23.5		
7					3	17.6		
7.5					3	17.6		
8	8	8.9						
8.5	12	13.3						
9	20	22.2						
9.5	12	13.3						
10	16	17.8						
10.5	8	8.9						
11	12	13.3						
11.5								
12	2	2.2						
12.5								
13								
13.5								
14								
14.5								
15								
15.5								
16								
16.5								
17								
17.5			1	25.0				
18								
18.5								
19								
19.5								
20			1	25.0				
20.5			1	25.0				
21								
21.5			1	25.0				
22								
22.5								
23								
23.5								
24								
24.5								
25								
25.5								
26								
26.5								
27								
Totals	90		4		17		1	

Appendix 2. Length frequency distribution of fish harvested from Loon Pit.

Length (inches)	Crappie		Channel catfish		Bluegill		Largemouth bass	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
5								
5.5								
6					1	5.9		
6.5					4	23.5		
7					1	5.9		
7.5					4	23.5		
8	6	8.6			7	41.2		
8.5	8	11.4						
9	11	15.7						
9.5	10	14.3						
10	16	22.9						
10.5	9	12.9						
11	8	11.4						
11.5								
12	1	1.4						
12.5								
13	1	1.4						
13.5								
14								
14.5								
15								
15.5								
16								
16.5								
17								
17.5								
18			1	20.0			1	100
18.5								
19								
19.5			1	20.0				
20								
20.5			1	20.0				
21								
21.5								
22								
22.5								
23			1	20.0				
23.5								
24								
24.5								
25								
25.5								
26								
26.5								
27								
28			1	20.0				
Totals	70		5		17		1	

Appendix 3

Blue Grass Pit Largemouth Bass Survey Data

LAKE SURVEY REPORT

Type of Survey

☐

Initial
Survey

☒

Re-Survey

Lake Name Blue Grass Pit	County Warrick	Date of survey (Month, day, year) April 10 and 17, 2006
Biologist's name Michelle L. Weinman		Date of approval (Month, day, year) May 16, 2007

LOCATION

Quadrangle Name Elberfeld	Range 9W	Section 31
Township Name 4S	Nearest Town Elberfeld	

ACCESSIBILITY

State owned public access site One concrete and one gravel boat ramp			Privately owned public access site		Other access site
Surface acres 195	Maximum depth 57	Average depth 25	Acre feet 4,875	Water level unknown	Extreme fluctuations 4 feet
Location of benchmark					

INLETS

Name Blue Grass Creek	Location Northwest side of pit	Origin

OUTLETS

Name Culvert pipe to Loon Pit	Location South end of Pit
Water level control	

POOL

ELEVATION (Feet MSL)

ACRES

Bottom type

TOP OF DAM			<input type="checkbox"/> Boulder
TOP OF FLOOD CONTROL POOL			<input type="checkbox"/> Gravel
TOP OF CONSERVATION POOL			<input type="checkbox"/> Sand
TOP OF MINIMUM POOL			<input checked="" type="checkbox"/> Muck
STREAMBED			<input type="checkbox"/> Clay
			<input type="checkbox"/> Marl

Watershed use

Reclaimed coal strip mine ground.

Development of shoreline

None

Previous surveys and investigations

Supplemental survey in 2000, 2004, and 2005.

Fisheries survey in 2001.

Crappie survey in 2005.

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0	4	1.2	3.90	8
1.5					19.5	3	0.9	4.02	8, 9
2.0					20.0				
2.5					20.5				
3.0					21.0				
3.5					21.5	1	0.3	4.87	9
4.0	9	2.7	0.03	1	22.0				
4.5	18	5.4	0.04	1	22.5				
5.0	11	3.3	0.05	1	23.0				
5.5	19	5.7	0.07	1	23.5				
6.0	7	2.1	0.09	1	24.0				
6.5	7	2.1	0.12	1, 2	24.5				
7.0	1	0.3	0.15	2	25.0				
7.5	11	3.3	0.18	2	25.5				
8.0	28	8.4	0.23	2	26.0				
8.5	32	9.6	0.26	2	TOTAL	335			
9.0	37	11.0	0.31	2					
9.5	24	7.2	0.36	2, 3					
10.0	30	9.0	0.43	2, 3					
10.5	17	5.1	0.50	3					
11.0	15	4.5	0.58	3, 4					
11.5	15	4.5	0.68	4					
12.0	8	2.4	0.75	4					
12.5	5	1.5	0.87	4, 5					
13.0	6	1.8	0.97	4, 5					
13.5	3	0.9	1.09	4, 5					
14.0	4	1.2	1.25	4, 5					
14.5	5	1.5	1.39	5					
15.0	2	0.6	1.58	5					
15.5	4	1.2	1.84	5, 6					
16.0	2	0.6	1.93	5, 6					
16.5	1	0.3	2.31	6					
17.0	3	0.9	2.54	6, 7					
17.5									
18.0									
18.5	3	0.9	3.39	7, 8					

ELECTROFISHING CATCH	89.3/h	GILL NET CATCH	N/A	TRAP NET CATCH	N/A
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LARGEMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total number	Sub- sample	AGE								
			1	2	3	4	5	6	7	8	9
4.0	9	5	9								
4.5	17	6	17								
5.0	11	3	11								
5.5	19	8	19								
6.0	7	4	7								
6.5	7	4	5	2							
7.0	1	1		1							
7.5	11	2		11							
8.0	27	4		27							
8.5	32	4		32							
9.0	37	5		30	7						
9.5	24	4		18	6						
10.0	29	7		4	25						
10.5	17	5			17						
11.0	15	3			10	5					
11.5	15	3				15					
12.0	8	2				8					
12.5	5	4				4	1				
13.0	6	5				2	4				
13.5	3	3				1	2				
14.0	4	4				1	3				
14.5	5	4					5				
15.0	2	2					2				
15.5	4	4					1	3			
16.0	2	2					1	1			
16.5	1	1						1			
17.0	3	3						1	2		
17.5											
18.0											
18.5	3	2							2	1	
19.0	3	3								3	
19.5	3	2								2	1
20.0											
20.5											
21.0											
21.5	1	1									1
Totals	331	110	68	125	65	36	19	6	4	6	2

AGE-LENGTH KEY SUMMARY							
Age	Number	Mean			Lower 95%CI	Upper 95%CI	
		TL	Var	SE			
1	68	5.4	0.54	0.09	5.2	5.5	
2	125	8.8	0.49	0.06	8.7	9.0	
3	65	10.4	0.34	0.07	10.2	10.5	
4	36	12.1	0.50	0.12	11.9	12.4	
5	19	14.3	0.91	0.22	13.9	14.8	
6	6	16.3	0.40	0.26	15.7	16.8	
7	4	17.9	0.77	0.47	17.0	18.8	
8	6	19.3	0.15	0.16	18.9	19.6	
9	2	20.6	1.60	0.80	19.0	22.2	

GPS LOCATION OF SAMPLING EQUIPMENT									
GILL NETS			TRAP NETS			ELECTROFISHING			
1	N	W	1	N	W	1	N 38.0897	W -87.4647	
2	N	W	2	N	W		N 38.0931	W -87.4627	
3	N	W	3	N	W	2	N 38.0932	W -87.4628	
4	N	W	4	N	W		N 38.0917	W -87.4609	
5	N	W	5	N	W	3	N 38.0917	W -87.4609	
6	N	W	6	N	W		N 38.0934	W -87.4589	
7	N	W	7	N	W	4	N 38.0936	W -87.4582	
8	N	W	8	N	W		N 38.0921	W -87.4577	
9	N	W	9	N	W	5	N 38.0921	W -87.4577	
10	N	W	10	N	W		N 38.0948	W -87.4576	
11	N	W	11	N	W	6	N 38.0949	W -87.4576	
12	N	W	12	N	W		N 38.0941	W -87.4601	
13	N	W	13	N	W	7	N 38.0944	W -87.4604	
14	N	W	14	N	W		N 38.0956	W -87.4627	
15	N	W	15	N	W	8	N 38.0957	W -87.4628	
16	N	W	16	N	W		N 38.0974	W -87.4583	
17	N	W	17	N	W	9	N 38.0897	W -87.4647	
18	N	W	18	N	W		N 38.0931	W -87.4627	
19	N	W	19	N	W	10	N 38.0932	W -87.4628	
20	N	W	20	N	W		N 38.0917	W -87.4609	
						11	N 38.0917	W -87.4609	
							N 38.0934	W -87.4589	
						12	N 38.0936	W -87.4582	
							N 38.0921	W -87.4577	
						13	N 38.0921	W -87.4577	
							N 38.0948	W -87.4576	
						14	N 38.0949	W -87.4576	
							N 38.0941	W -87.4601	
						15	N 38.0944	W -87.4604	
							N 38.0956	W -87.4627	
						16	N	W	
							N	W	
						17	N	W	
							N	W	
						18	N	W	
							N	W	
						19	N	W	
							N	W	
						20	N	W	
							N	W	

Appendix 4

Loon Pit Largemouth Bass Survey Data

LAKE SURVEY REPORT

Type of Survey

☐

Initial
Survey

☒

Re-Survey

Lake Name Loon Pit	County Warrick	Date of survey (Month, day, year) April 11 and 18, 2006
Biologist's name Michelle L. Weinman		Date of approval (Month, day, year) May 16, 2007

LOCATION

Quadrangle Name Daylight	Range 9W	Section 7, 18
Township Name 5S	Nearest Town Daylight	

ACCESSIBILITY

State owned public access site One concrete and one gravel boat ramp			Privately owned public access site		Other access site
Surface acres 184	Maximum depth 62	Average depth 22	Acre feet 4,048	Water level unknown	Extreme fluctuations 4 feet

INLETS

Name Culvert pipe from Blue Grass Pit	Location North end of pit	Origin Blue Grass Pit

OUTLETS

Name Culvert pipe to Otter Pit	Location South end of pit
Water level control	

POOL

ELEVATION (Feet MSL)

ACRES

Bottom type

TOP OF DAM		
TOP OF FLOOD CONTROL POOL		
TOP OF CONSERVATION POOL		
TOP OF MINIMUM POOL		
STREAMBED		

<input type="checkbox"/>	Boulder
<input type="checkbox"/>	Gravel
<input type="checkbox"/>	Sand
<input checked="" type="checkbox"/>	Muck
<input type="checkbox"/>	Clay
<input type="checkbox"/>	Marl

Watershed use Reclaimed coal strip mine ground
Development of shoreline None
Previous surveys and investigations Supplemental survey in 2000, 2004, and 2005.
Fisheries survey in 2001.

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5	1	0.4	4.02	8
2.0					20.0				
2.5					20.5	1	0.4	4.74	9
3.0					21.0				
3.5	1	0.4	0.03	1	21.5				
4.0	1	0.4	0.03	1	22.0				
4.5	5	2.0	0.04	1	22.5				
5.0	3	1.2	0.05	1	23.0				
5.5	4	1.6	0.07	1	23.5				
6.0	2	0.8	0.09	1	24.0				
6.5	5	2.0	0.12	1, 2	24.5				
7.0	2	0.8	0.15	2	25.0				
7.5	5	2.0	0.18	2	25.5				
8.0	18	7.1	0.23	2	26.0				
8.5	19	7.5	0.26	2, 3	TOTAL	254			
9.0	25	9.8	0.31	2, 3					
9.5	16	6.3	0.36	3					
10.0	26	10.2	0.43	2, 3, 4					
10.5	33	13.0	0.50	3					
11.0	23	9.1	0.58	3, 4					
11.5	27	10.6	0.68	3, 4					
12.0	12	4.7	0.75	4					
12.5	8	3.1	0.87	4					
13.0	6	2.4	0.97	3, 4, 5					
13.5	1	0.4	1.09	5					
14.0	1	0.4	1.25	4					
14.5	5	2.0	1.39	5					
15.0									
15.5	1	0.4	1.84	6					
16.0									
16.5									
17.0	3	1.2	2.54	7					
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	67.7/h	GILL NET CATCH	N/A	TRAP NET CATCH	N/A
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LARGEMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total number	Sub- sample	AGE								
			1	2	3	4	5	6	7	8	9
3.5	1	1	1								
4.0	1	1	1								
4.5	5	5	5								
5.0	3	3	3								
5.5	4	2	4								
6.0	2	2	2								
6.5	5	5	1	4							
7.0	2	2		2							
7.5	5	1		5							
8.0	18	6		18							
8.5	19	4		10	9						
9.0	25	5		10	15						
9.5	16	4			16						
10.0	26	5		5	16	5					
10.5	33	4			33						
11.0	23	4			12	11					
11.5	27	7			4	23					
12.0	12	2				12					
12.5	8	4				8					
13.0	6	5			1	4	1				
13.5	1	1					1				
14.0	1	1				1					
14.5	5	4					5				
15.0											
15.5	1	1						1			
16.0											
16.5											
17.0	3	3							3		
17.5											
18.0											
18.5											
19.0											
19.5	1	1								1	
20.0											
20.5	1	1									1
21.0											
21.5											
Totals	254	84	17	54	106	64	7	1	3	1	1

AGE-LENGTH KEY SUMMARY

Age	Number	Mean		SE	Lower	Upper
		TL	Var		95%CI	95%CI
1	17	5.3	0.61	0.19	4.9	5.7
2	54	8.5	0.79	0.12	8.3	8.8
3	106	10.3	0.76	0.08	10.1	10.4
4	64	11.9	0.61	0.10	11.7	12.1
5	7	14.4	0.42	0.24	13.9	14.8
6	1	15.8				
7	3	17.3	0.00	0.00	17.3	17.3
8	1	19.8				
9	1	20.8				

GPS LOCATION OF SAMPLING EQUIPMENT									
GILL NETS			TRAP NETS			ELECTROFISHING			
1	N	W	1	N	W	1	N 38.0793	W -87.4576	
2	N	W	2	N	W		N 38.0790	W -87.4601	
3	N	W	3	N	W	2	N 38.0789	W -87.4601	
4	N	W	4	N	W		N 38.0827	W -87.4613	
5	N	W	5	N	W	3	N 38.0827	W -87.4613	
6	N	W	6	N	W		N 38.0829	W -87.4582	
7	N	W	7	N	W	4	N 38.0829	W -87.4584	
8	N	W	8	N	W		N 38.0848	W -87.4612	
9	N	W	9	N	W	5	N 38.0851	W -87.4601	
10	N	W	10	N	W		N 38.0852	W -87.4585	
11	N	W	11	N	W	6	N 38.0853	W -87.4584	
12	N	W	12	N	W		N 38.0860	W -87.4584	
13	N	W	13	N	W	7	N 38.0860	W -87.4584	
14	N	W	14	N	W		N 38.0895	W -87.4580	
15	N	W	15	N	W	8	N 38.0895	W -87.4580	
16	N	W	16	N	W		N 38.0897	W -87.4586	
17	N	W	17	N	W	9	N 38.0886	W -87.4623	
18	N	W	18	N	W		N 38.0863	W -87.4636	
19	N	W	19	N	W	10	N 38.0861	W -87.4633	
20	N	W	20	N	W		N 38.0817	W -87.4633	
						11	N 38.0817	W -87.4633	
							N 38.0764	W -87.4634	
						12	N 38.0782	W -87.4581	
							N 38.0809	W -87.4585	
						13	N 38.0803	W -87.4592	
							N 38.0814	W -87.4614	
						14	N 38.0815	W -87.4614	
							N 38.0825	W -87.4588	
						15	N 38.0825	W -87.4587	
							N 38.0836	W -87.4609	
						16	N	W	
							N	W	
						17	N	W	
							N	W	
						18	N	W	
							N	W	
						19	N	W	
							N	W	
						20	N	W	
							N	W	